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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,164	05/03/2001	Peter R. Rhode	46146-C (71758)	1034

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EXAMINER

VANDERVEGT, FRANCOIS P

ART UNIT PAPER NUMBER

1644

DATE MAILED: 08/11/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/848,164

Applicant(s)

RHODE ET AL.

Examiner

F. Pierre VanderVegt

Art Unit

1644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 53-55, 57-63, 66-69 and 71-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 53-55, 57-63, 66-69 and 71-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

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### DETAILED ACTION

The Examiner in charge of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to F. Pierre VanderVegt, Ph.D. in Art Unit 1644.

This application is a continuation of U.S. Application Serial Number 09/067,615, which is a continuation of U.S. Application Serial Number 08/596,387.

Claims 1-28, 32-34, 38-42 and 49-51 have been canceled previously.

#### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's amendment filed on May 23, 2003 (Paper No. 14) has been entered.

Claims 29-31, 35-37, 43-48, 52, 56, 64, 65, 70, and 77-87 have been canceled presently.

Claims 53-55, 57-63, 66-69 and 71-76 are currently pending and are the subject of examination in the present Office Action.

#### *Drawings*

2. Applicant is reminded of the requirement for corrected drawings made in the Office Action mailed May 7, 2002 (Paper No. 6). Drawings have been submitted which fail to comply with 37 CFR 1.84.

Please see the form PTO-948 enclosed with said Office Action..

#### INFORMATION ON HOW TO EFFECT DRAWING CHANGES

##### **A. Correction of Informalities -- 37 CFR 1.85**

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. *The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.*

##### **B. Corrections other than Informalities Noted by Draftsperson on form PTO-948.**

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All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

#### **Timing of Corrections**

*Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in ABANDONMENT of the application.*

3. Applicant is reminded to amend the Brief Description of the Drawings to reflect the numbering used in the Figures. In addition, if any individual panel is described (e.g., Figure 1A), then all individual panels must be described. MPEP 608.01(f).

Appropriate correction is required.

#### **Specification**

The disclosure is objected to because of the following informalities:

Applicant should amend Page 1 of the specification to reflect the current status of priority application 09/067,615.

Appropriate correction is required.

#### **Claim Rejections - 35 USC § 112**

4. Claims 53-55, 57-63, 66-69 and 71-76 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 53 and 66 each recite as a limitation where either the alpha or beta chain portion of a single chain MHC Class II complex is "truncated." However, the specification and claims as originally filed disclose only single chain MHC Class II molecules where both the alpha and beta chain portions are truncated to delete the transmembrane domain. Further, the specification defines "truncated" as referring to a single chain molecule that "can be secreted into culture medium (e.g. physiological conditions; in the substantial or complete absence of detergent or the like)" (page 23, line 16 to page 24, line 5 for example). A single chain molecule which possesses even one of the transmembrane domains would remain anchored in the cell membrane and not secreted. Accordingly, the specification and claims as originally filed do not support the recitation of truncating only one of the alpha and beta chains and the recitation

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therefore constitutes new matter. Applicant should specifically point out the support for any amendments made to the disclosure (See MPEP 714.02 and 2163.06). The dependent claims, which all read upon this limitation, are included in this ground of rejection.

5. Claims 53-55, 57-63, 66-69 and 71-76 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for truncated single chain MHC Class II molecules wherein both the alpha and beta chains have been truncated to render the single chain molecule soluble, does not reasonably provide enablement for single chain MHC Class II molecules wherein either the alpha or beta chain portion of the molecule has not been truncated to exclude the transmembrane and cytoplasmic domains. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Briefly, the claims are drawn to single chain MHC Class II molecules comprising covalently linked alpha and beta chains joined by a linker peptide wherein one or both of the chains lacks a transmembrane domain and one or both of the chains are truncated. The specification is enabling only for truncated single chain molecules wherein BOTH the alpha and beta chain regions are truncated to delete both the transmembrane and cytoplasmic domains. The specification defines the truncated single chain molecules at page 23, line 16 to page 24, line 5 for example. The specification there discloses:

“Truncated MHC fusion complexes contain a MHC molecule that is sufficiently truncated so the MHC fusion complex can be secreted into culture medium (e.g. physiological conditions; in the substantial or complete absence of detergent or the like) after expression.”

The specification therefore defines truncated MHC Class II molecules as being soluble. It is noted that the presence of either one of the transmembrane domains as part of, or attached to, the single chain MHC Class II molecule would be sufficient to anchor the molecule to the cell membrane and prevent it from being soluble. However, the specification clearly defines a truncated molecule as being one that can be secreted “in the substantial or complete absence of detergent.” Accordingly, the artisan would not predict that a single chain MHC Class II molecule could be secreted into medium unless both the alpha and beta chains are truncated to exclude the transmembrane and cytoplasmic domains. Without specific guidance from the specification, the artisan would not know how to determine how much of either transmembrane region could still be attached to the single chain MHC Class II molecule and retain the solubility of the molecule. While the specification discloses “at least portions of those domains may be suitably present,” the specification also discloses that “a truncated MHC fusion complex will not

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include regions rich in hydrophobic residues” and the specification does not disclose the degree by which the qualitative term “rich” may be measured. The specification discloses that the soluble molecules may be “identified empirically, i.e. by examining if the MHC complex is secreted into culture medium after expression as discussed” but does not disclose any other means by which solubility can be determined. In terms of guidance on how to determine whether a single chain MHC Class II molecule is truncated according to the definition of the specification, the passage directs the practitioner to “[s]ee the examples which follow.” However, in said examples (Examples 1A-1F in particular), the specification discloses only the expression of the murine and human alpha and beta extracellular domains with the total absence of the transmembrane and cytoplasmic domains. Accordingly, in light of the paucity of guidance in the specification, it would require an undue amount of trial and error on the part of one skilled in the art to determine how much of the transmembrane domain can remain attached to the transmembrane regions of the alpha and beta chain regions of the single chain MHC Class II molecule.

In view of the breadth of the claims, the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, and the lack of sufficient guidance in the specification, it would take undue trials and errors to practice the claimed invention.

### *Conclusion*

6. No claim is allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Pierre VanderVegt whose telephone number is (703) 305-4441. The examiner can normally be reached on M-Th 6:30-4:00; Alternate Fridays 6:30-3:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

F. Pierre VanderVegt, Ph.D. *PV*  
Patent Examiner  
August 7, 2003

*Phillip Gambel*  
PHILLIP GAMBEL, PH.D.  
PRIMARY EXAMINER  
*TC 1600*  
*8/7/03*